

(19) 世界知的所有権機関  
国際事務局



(43) 国際公開日  
2004 年 6 月 17 日 (17.06.2004)

PCT

(10) 国際公開番号  
WO 2004/050576 A1

(51) 国際特許分類<sup>7</sup>: C03C 4/12, 3/068, 15/00,  
21/00, C03B 8/00, 20/00, F21S 8/02

(21) 国際出願番号: PCT/JP2003/015208

(22) 国際出願日: 2003 年 11 月 28 日 (28.11.2003)

(25) 国際出願の言語: 日本語

(26) 国際公開の言語: 日本語

(30) 優先権データ:  
特願 2002-349153

2002 年 11 月 29 日 (29.11.2002) JP

特願 2003-128325 2003 年 5 月 6 日 (06.05.2003) JP

特願 2003-128333 2003 年 5 月 6 日 (06.05.2003) JP

(71) 出願人 (米国を除く全ての指定国について): 独立  
行政法人科学技術振興機構 (JAPAN SCIENCE AND  
TECHNOLOGY AGENCY) [JP/JP]; 〒332-0012 埼玉

県 川口市 本町 4 丁目 1 番 8 号 Saitama (JP). 独立  
行政法人産業技術総合研究所 (NATIONAL INSTI-  
TUTE OF ADVANCED INDUSTRIAL SCIENCE AND  
TECHNOLOGY) [JP/JP]; 〒100-8921 東京都 千代田区  
霞が関一丁目 3 番 1 号 Tokyo (JP).

(72) 発明者; および

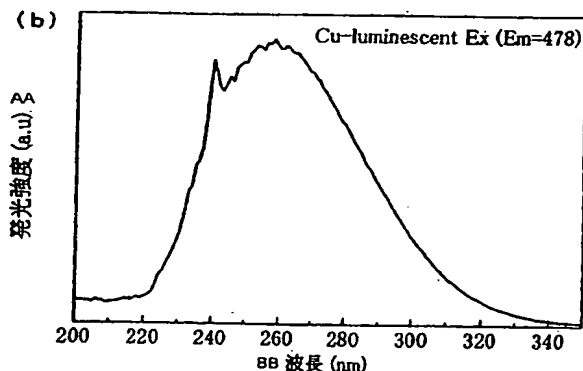
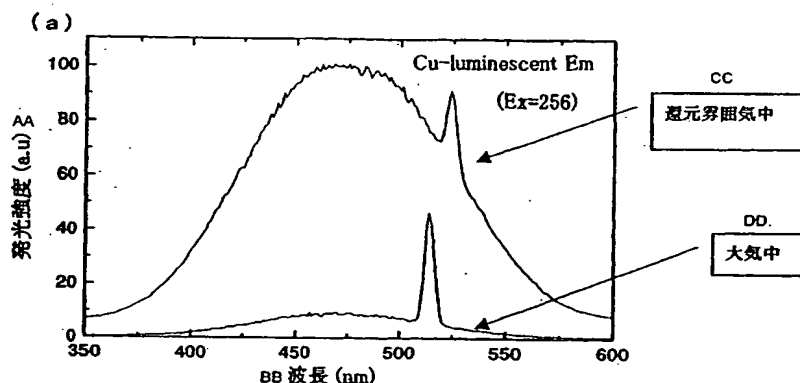
(75) 発明者/出願人 (米国についてのみ): 陳 丹平  
(CHEN, Danping) [CN/JP]; 〒563-8577 大阪府 池田  
市 緑丘 1 丁目 8 番 3 1 号 独立行政法人産業技術  
総合研究所 関西センター内 Osaka (JP). 赤井 智子  
(AKAI, Tomoko) [JP/JP]; 〒563-8577 大阪府 池田市 緑  
丘 1 丁目 8 番 3 1 号 独立行政法人産業技術総合研  
究所 関西センター内 Osaka (JP).

(74) 代理人: 三枝 英二, 外 (SAEGUSA, Eiji et al.); 〒  
541-0045 大阪府 大阪市 中央区道修町 1-7-1 北浜  
T N K ビル Osaka (JP).

[続葉有]

(54) Title: LUMINESCENT GLASS

(54) 発明の名称: 発光ガラス



AA...LUMINESCENCE INTENSITY (a.u.)  
BB...WAVELENGTH (nm)  
CC...IN REDUCING ATMOSPHERE  
DD...IN AIR

(57) Abstract: A process for producing a luminescent glass characterized in that at least one metal component selected from the group consisting of elements of Groups 3A, 4A, 5A, 6A, 7A, 8, 1B, 2B and 4B of the periodic table is adsorbed on a porous high silicate glass and thereafter the porous glass is fired in a reducing atmosphere. The luminescent glass obtained by this process excels in heat resistance, chemical resistance, mechanical strength, etc. and emits intense fluorescence upon exposure to ultraviolet radiation or the like. Thus, the luminescent glass can be effectively utilized as, for example, a luminescent element of lighting equipment or display.

(57) 要約: 本発明は、多孔質高ケイ酸ガラスに、周期表 3 A 族、4 A 族、5 A 族、6 A 族、7 A 族、8 族、1 B 族、2 B 族及び 4 B 族の各族に属する元素からなる群から選ばれた少なくとも一種の金属成分を吸着させた後、還元性雰囲気中において該多孔質ガラスを焼成することを特徴とする発光ガラスの製造方法を提供するものである。この方法によって得られる発光ガラスは、耐熱性、化学的耐久性、機械的強度等に優れ、しかも紫外線等の照射により強い蛍光を発するものであり、照明装置、ディスプレイ装置の発光体などとして有効に利用できる。

WO 2004/050576 A1



(81) 指定国 (国内): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) 指定国 (広域): ARIPO 特許 (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), ユーラシア特許 (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), ユーロッパ特許 (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK,

TR), OAPI 特許 (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

規則4.17に規定する申立て:

- すべての指定国のための不利にならない開示又は新規性喪失の例外に関する申立て (規則4.17(v))

添付公開書類:

- 国際調査報告書
- 不利にならない開示又は新規性喪失の例外に関する申立て

2文字コード及び他の略語については、定期発行される各PCTガゼットの巻頭に掲載されている「コードと略語のガイダンスノート」を参照。

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP03/15208

## A. CLASSIFICATION OF SUBJECT MATTER

Int.Cl<sup>7</sup> C03C4/12, C03C3/068, C03C15/00, C03C21/00, C03B8/00,  
C03B20/00, F21S8/02

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int.Cl<sup>7</sup> C03C1/00-14/00, C03C15/00-23/00, F21S8/02

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Jitsuyo Shinan Koho 1922-1996 Jitsuyo Shinan Toroku Koho 1996-2004  
Kokai Jitsuyo Shinan Koho 1971-2004 Toroku Jitsuyo Shinan Koho 1994-2004

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y A	JP 7-330369 A (Masayuki NOGAMI), 19 December, 1995 (19.12.95), Claim 1; Par. Nos. [0001], [0028], [0030] to [0054]; Figs. 1 to 2 (Family: none)	1, 2, 4, 6, 8, 9 <u>3, 5, 7, 10</u>
Y A	JP 1-76933 A (Seiko Epson Corp.), 23 March, 1989 (23.03.89), Full text (Family: none)	1, 2, 4, 6, 9 <u>3, 5, 7</u>
Y A	WO 96/21868 A1 (THE GOVERNMENT OF THE UNITED STATES OF AMERICA), 18 July, 1996 (18.07.96), Full text; Figs. 1 to 5 & US 5585640 A & JP 11-502610 A Full text; Figs. 1 to 5	1, 2, 4, 6, 8, 9 <u>3, 5, 10</u>

☒ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

\* Special categories of cited documents:  
"A" document defining the general state of the art which is not  
considered to be of particular relevance  
"E" earlier document but published on or after the international filing  
date  
"L" document which may throw doubts on priority claim(s) or which is  
cited to establish the publication date of another citation or other  
special reason (as specified)  
"O" document referring to an oral disclosure, use, exhibition or other  
means  
"P" document published prior to the international filing date but later  
than the priority date claimed

"T" later document published after the international filing date or  
priority date and not in conflict with the application but cited to  
understand the principle or theory underlying the invention  
"X" document of particular relevance; the claimed invention cannot be  
considered novel or cannot be considered to involve an inventive  
step when the document is taken alone  
"Y" document of particular relevance; the claimed invention cannot be  
considered to involve an inventive step when the document is  
combined with one or more other such documents, such  
combination being obvious to a person skilled in the art  
"&" document member of the same patent family

Date of the actual completion of the international search  
19 February, 2004 (19.02.04)

Date of mailing of the international search report  
09 March, 2004 (09.03.04)

Name and mailing address of the ISA/  
Japanese Patent Office

Authorized officer

Facsimile No.

Telephone No.

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP03/15208

## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	Sumio SAKUHANA et al., "Glass Handbook", Kabushiki Kaisha Asakura Shoten, 30 September, 1975 (30.09.75), pages 98 to 99	10
A	JP 49-134187 A (Matsushita Electric Works, Ltd.), 24 December, 1974 (24.12.74), Claims (Family: none)	11,12
A	JP 2000-326786 A (Ichikoh Industries Ltd.), 28 November, 2000 (28.11.00), Claim 1 (Family: none)	11,12
A	JP 6-29001 A (Stanley Electric Co., Ltd.), 04 February, 1994 (04.02.94), Par. Nos. [0010] to [0014], [0018] to [0020]; Fig. 1 (Family: none)	11,13